

VISION FOR NEW TOOLS

International Public Health Pesticides Workshop

London, UK

May 19-21, 2009

Kathryn S. Aultman, Ph.D.
Senior Program Officer, Bill & Melinda Gates Foundation

Vision for New tools

Broad characteristics

- Reduce transmission by vectors
- Globally accessible
- Profitable for manufacturers
- Safe, efficacious
- Acceptable to users
- Fit for the market

Vision for New tools

- Repellents
- “Stomach poisons”
- Lifespan shorteners
- Cattle pour on treatments
- Traps and targets; attractants and lures
- “SIT” approaches
- Mating disruptors
- IVM

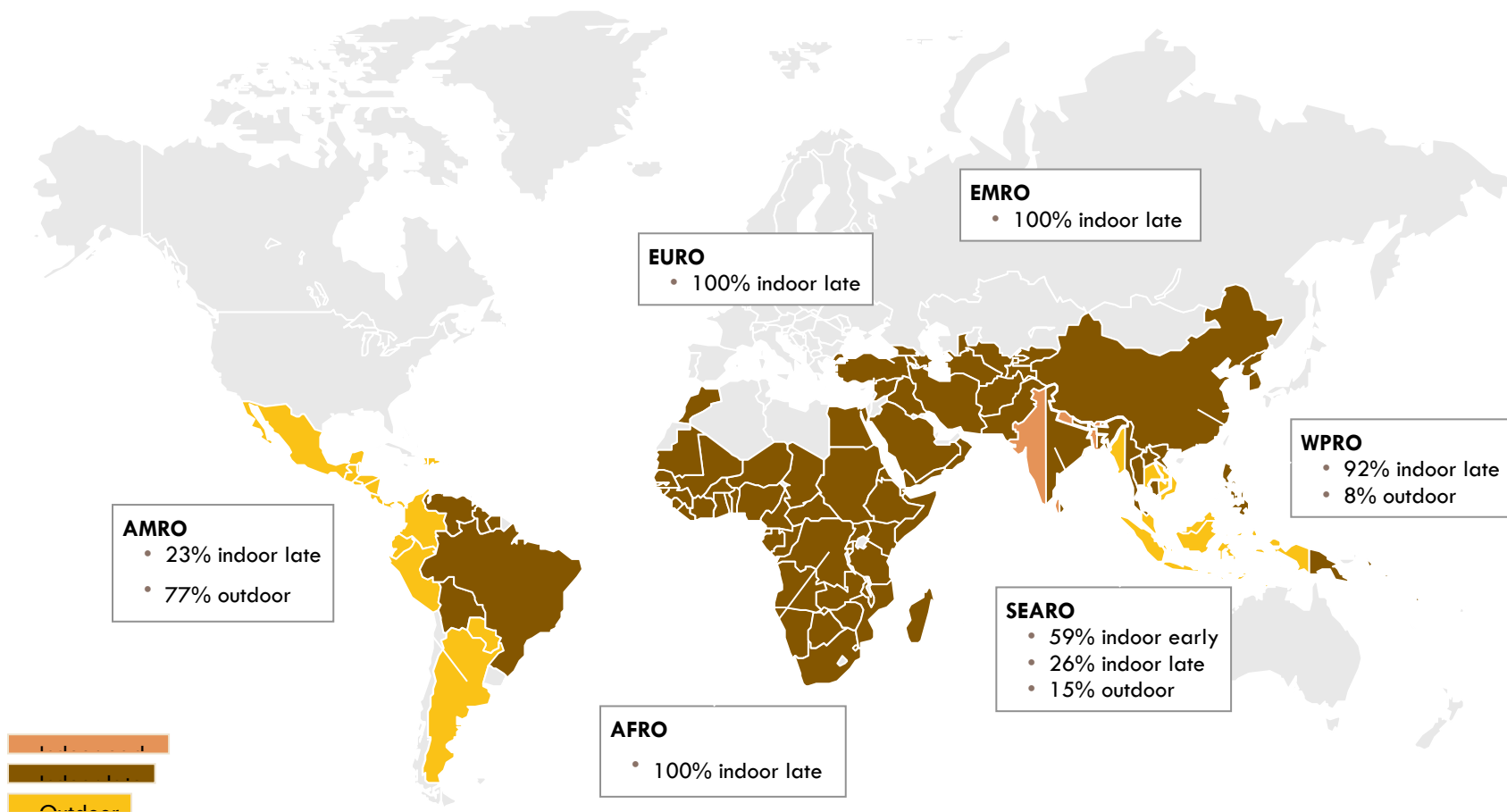
Facilitating Innovation: Consensus Vision

- Unaddressed insect ecologies and behaviors
 - ▣ Outdoor resting anophelines are poorly controlled with LLINs or IRS
 - ▣ Mosquitoes that breed in ephemeral habitats are poorly controlled with standard larvicides

Zahar AR. *Vector bionomics in the epidemiology and control of malaria*.
Geneva, World Health Organization
(10 volumes by geographical region, published between 1984 and 1996)

<http://apps.who.int/malaria/pages/vectorcontrol/vectorbionomics.html>

Facilitating Innovation: Vector Maps



Note: Percentages based on percent of population at risk of particular mosquito vector species and assumed behavior of that species
Source: Expert interviews; BCG Analysis

Facilitating Innovation

Target Product Profiles

- Description of the characteristics of a product
 - ▣ Enable benchmarking and evaluation of candidates
 - ▣ Early versions are more general; becoming more specific as product development proceeds
 - ▣ Clear target levels the playing field for innovators

Facilitating Innovation

Critical path delineation

- Critical path defines the elements and optimizes the process of a development activity
 - ▣ Explicitly identifies various actors
 - ▣ Relates the activities in time and inputs
- In some areas we are out of synch and out of step
 - ▣ Resistance breaking LLINs
 - ▣ Discovery of novel repellent moieties
- What is the solution?

Facilitating Innovation

ADEQUATE AND PREDICTABLE REGULATORY REQUIREMENTS

- ▣ Stable and predictable regulatory environment
- ▣ Cooperation between regulators and industry
- ▣ Swift and transparent regulatory approval process for pharmaceutical products
- ▣ Harmonization of regulatory requirements globally
- ▣ Adjustment of regulatory requirements to advances in science and technology

Facilitating Innovation

- Effective health care systems
- Effective protection of intellectual property
- Well functioning, efficient markets
 - ▣ Procurement
 - Minimum requirements upheld
 - Product differentiation allowed
 - Swift and transparent product selection
 - ▣ Financing
 - ▣ Barriers such as taxes and import duties

Vision for New Tool Development

Predicting the future of a dynamic, crowded system

- Changing epidemiology
 - Malaria prevalence has fallen to single digit levels in many sites
 - Dengue virus is re-emerging as a significant threat in many urban areas
 - Understanding of the drivers of transmission is growing – pathogen reservoirs are focal points for action
- Evolving public health strategy
 - Central command and control vs. distributed, individual and community-based programs
 - Eradication vs. “control”
 - Personal vs. community protection

Vision for New Tool Development

- ▣ Changing health care delivery systems – dramatic improvements in access to care
- ▣ Emerging markets
- ▣ Resource allocation challenges
- ▣ Evolving views about intellectual property
- ▣ Evolving regulatory systems

Vision for New Tool Development

Like a football player who has to pass the ball downfield to the striker, teamwork allows him to know where to send the ball to set up a goal. This is a quintessential “moving target”, a dynamic system with very many moving parts.

Requires teamwork, practice

Vision for New Tool Development

- Players
 - Scientists
 - Public health experts
 - Health care deliverers
 - Consumers/families/individuals
 - Communities
 - Commercial partners/product developers
 - Regulators

Vision for New Tool Development

- How can we facilitate this process?
 - ▣ WHO Expert Committees?
 - ▣ Vector Community-based coordinating mechanism?
- What specific actions should be undertaken?
 - ▣ Articulating an analytical framework for prioritizing
 - ▣ Establishing TPPs
 - ▣ Supporting product field testing
 - ▣ Reviewing evidence
 - ▣ Recommending uses

Vision for New Tool Development

- Processes
 - Initial vision of public health need
 - Observations of transmission biology
 - Field studies for proof of principle
 - Definition of target product profile
 - Product development
 - Public health strategy/policy development
 - Market issues: procurement, financing, infrastructure development
 - Pre-qualification
 - Procurement and delivery
 - Use, impact
 - Monitoring

Conclusion



We are overdue for a revolution in vector control.
Innovation is biologically possible and within economic reach.

We need to explore options for facilitating development.